

STRUCTURED FISCHER-TROPSCH CATALYST SYSTEM
AND METHOD

ABSTRACT OF THE DISCLOSURE

5 A Fischer-Tropsch catalyst for the conversion of
synthesis gas into Fischer-Tropsch products includes a
stationary Fischer-Tropsch catalyst having a voidage
ratio greater than approximately 0.45 or 0.6 and may
further have a catalyst concentration for a given
reactor volume of at least 10 percent. A Fischer-
Tropsch catalyst has a structured shape promoting non-
Taylor flow and/or producing a productivity in the
10 range of 200 - 4000 vol CO/vol. Catalyst/hour or
greater over at least a 600 hour run of a Fischer-
Tropsch reactor with the catalyst therein. A system
for converting synthesis gas into longer-chain
hydrocarbon products through the Fisher-Tropsch
15 reaction has a reactor for receiving synthesis gas
directly or as a saturated hydrocarbon liquid or a
combination, and a stationary, structured Fischer-
Tropsch catalyst disposed within the reactor for
converting at least a portion of the synthesis gas into
20 longer-chain hydrocarbons through Fischer-Tropsch
reaction. A Fischer-Tropsch reactor system having a
structured Fischer-Tropsch catalyst may have an all-
liquid saturated reactant feed, an all gas reactant
feed, or a plethora of combinations therebetween. The
25 systems may or may not include heat removal devices.
Methods of manufacturing catalysts and converting
synthesis gas are also presented.